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420). An editorial, two columns long, labelled Radical and Dangerous, appeared in The New York Times of Sunday, January 21, 1917. In this Dr. Eliot and Dr. Flexner were both sharply criticized, and it was insisted that the General Education Board had no authority in the powers conveyed to it by the act of incorporation to spend money and use its influence for the 'modernization' of education or to control or to have anything to say about the curriculum of any college or the course of study in any school.

The next day in The Times appeared a letter signed Roy Mason, from which I take the following quotation:

The technical magazines are filled with laments that the technical man is totally unable to make himself understood except to another man with technical training.

At one time I was employed as advertising manager of a large electrical manufacturing concern. I was supposed to put into "popular" language, the meaning, use, and capabilities of the machines which it manufactured. I encountered constantly the objection: "What you have written means something entirely different to the technical man". They apparently classed themselves as a race apart with a different language from the public which they were trying to reach and to which they were endeavoring to sell their machines.

When I asked them pointed questions, "What can this machine do?" "How does it do it?" "Why does it do it?", they immediately seized a pad and pencil and began to draw diagrams. When I explained that I did not want it diagrammatically, but in words, they gave up in despair.

This reminds me of the statement of Mr. T. A. Rickard, an engineer, editor of a technical journal, to the effect that the men who have had only a technical training cannot write (see THE CLASSICAL WEEKLY 8.89). See, too, Dr. Rouse's remarks in THE CLASSICAL WEEKLY 5.26, and the reference to similar expressions by Mr. Paul Elmer More, formerly editor of The Nation, in THE CLASSICAL WEEKLY 9.97.

In The New York Times Magazine, for February 4, 1917, Dr. Thomas S. Baker, Headmaster of The Tome School, Port Deposit, Maryland, expressed the opinion that Dr. Flexner's School

will probably be an easier School and will have certain popular qualities, but, unless it departs widely from the outline which is shown in his monograph, it will bring little of permanent value to American education.

There is room here to mention only one other point made by Dr. Baker:

It would have been an experiment of great value if the Rockefeller board had undertaken to father a school with the conventional program of studies but with teachers of exceptional experience and ability. It has been announced that in the new school only 200 pupils will be at first accepted. It is probable that the authorities will have the opportunity of selecting these 200 from a large number, so that the school will be composed of picked students.

If the same care were exercised in choosing boys and teachers for the institution I should like to see founded, one that would be conducted along traditional lines, I believe results would show that conditions in the schools are not so bad as they would seem to the advocates of the "Modern School".

Others have since voiced this idea, that an 'experiment' with picked boys and picked teachers will prove one thing only—what can be done under abnormally favorable conditions. Certainly Dr. Baker and others are right in insisting that, if the Rockefeller Foundation is really guided by a scientific spirit and by a genuine desire to advance the cause of education, it will experiment—truly experiment—under equally favorable conditions with the 'traditional' School, under the conduct of true friends of that sort of School. A true experiment must consider all sides, all phases of a question. But the Rockefeller Foundation has thus far given no hint that it means to make a just experiment of this sort, in which the two types of Schools shall be treated in exactly the same way. C. K.

(To be continued)

### SOME FOLK-LORE OF ANCIENT PHYSIOLOGY AND PSYCHOLOGY

The rapid progress that is now being made in solving the mysteries of the human body is in marked contrast to the slowness with which medical science developed in antiquity. As late as the first century B. C., we find an eminent Roman writing as follows: 'We do not know our own bodies: of the position of the organs and the function each exercises we are ignorant' (Cicero, *Academica Priora* 2.122).

The superficial manner in which medical data were gathered may be illustrated by a quotation from Pliny, N. H. 11.149:

'The most learned authors say that there are veins which communicate from the eyes to the brain, but I am inclined to think that the communication is with the stomach; for it is quite certain that a person never loses an eye without being affected at the stomach'.

The lack of an accurate science of anatomy and physiology among the ancients gave rise to distorted conceptions about the seats of the emotions and of various physical attributes, as well as of the moral and intellectual faculties. These beliefs were in reality primitive science, but in retrospect they may be called the folk-lore of physiology and psychology. The mistakes have long since been recognized and rectified, but they have left an indelible impress upon language and methods of expression, and, in numerous instances, upon customs. It is the purpose of the present paper to collect typical passages in Latin literature referring to the seats of our physical and psychological experiences. Many of these ideas came to the Romans directly or indirectly from peoples living farther to the East, so that Roman views reflected those of several great civilizations bordering on the Eastern shores of the Mediterranean.

The scientific study of internal anatomy really began in Babylonia with a desire to know more of the liver for purposes of divination, and hence is more or less a by-product of hepatoscopy. As knowledge widened, fossilized expressions from previous strata of thought

remained to tell the story of the groping evolution of the science. Whatever advances were made received much more tardy recognition in antiquity than they do to-day. At times we find two strata of ideas existing side by side, especially when older beliefs are fostered by the poets, as happens in the case of the liver<sup>1</sup>.

To-day we speak of being faint-hearted, lion-hearted, kind-hearted, stony-hearted, broken-hearted, heartless, disheartened, of learning by heart, of purity of heart, of loving with all one's heart, etc., yet the primacy now accorded to the heart was once held by the liver.

So much blood centers in the liver that it came to be regarded as the seat of life<sup>2</sup>. This explains why in the older stratum of belief the liver rather than the heart is regarded as the vital organ. Ovid, *Heroides* 6.91-92, refers to a form of sympathetic magic by which the death of enemies is encompassed by driving needles into the liver of wax images:

Devovet absentes, simulacraque cerea fingit  
et miserum tenues in iecur urget acus.

So Ulysses (*Od.* 9.301) strikes Polyphemus, not to the heart, but to the liver. Likewise Jeremiah, in *Lam.* 2.11, lamenting the misery of Jerusalem, exclaims, My liver is poured out upon the earth for the destruction of the daughter of my people.

The stories of Tityus and Prometheus originated very early, so that it is always the liver that is associated with their sufferings. A good illustration may be found in *Aeneid* 6.595-600.

Professor Jastrow writes as follows:

Theocritus, in describing the lover fatally wounded by the arrows of love, speaks of his being 'hit in the liver', where we should say that he was 'struck to the heart', and if, in the myth of Prometheus, the benefactor of mankind is punished by having his liver perpetually renewed and eaten by a vulture, it shows that the myth originated in the early period when the liver was still commonly regarded as the seat of life. The renewal of the liver is the renewal of life, and the tragic character of the punishment consists in enduring the tortures of death continually, and yet being condemned to live for ever<sup>3</sup>.

To the feeling that the liver was the seat of life may be ascribed the belief that the *iecora* of certain animals possessed remedial powers<sup>4</sup>. It may likewise be noted that the liver of the long-lived deer was one of the ingredients that Medea used to restore youth to her aged father-in-law (*Ovid, Met.* 7. 273).

Cicero, *N. D.* 1.99, states that the liver, the heart,

and the lungs, are the seats of life<sup>5</sup>. The early intimate association of the liver with life is shown by German *Leib* and *Leber*, which are historically the same word. Perhaps the English words *life* and *liver* go back ultimately to the same root.

The liver has, likewise, been regarded as the center of intellectual and emotional life. To it, along with the heart, is assigned the seat of understanding: *En cor Zenodoti, en iecur Cratetis* (*Bibaculus*, apud Suetonium *Gram.* 11). In other passages it is the seat of the affections, *Non ancilla tuum iecur ulceret ulla puerve* (*Horace, Epp.* 1.18.72)<sup>6</sup>; of anger, *quanta siccum iecur ardeat ira* (*Juvenal* 1.45)<sup>7</sup>; of harshness and compassion, *Iecur fors horridum flectam merendo* (*Seneca, Herc. Oet.* 574); of grief, *Comprime infirmum iecur* (*Seneca, Herc. Oet.* 1677); of fear as well as of courage, *Cor attonitum salit, pavidumque trepidis palpitat venis iecur* (*Seneca, Herc. Oet.* 708-709)<sup>8</sup>.

While the Italian word for courage, *coraggio*, is a derivative of *cor*, the word for liver is still used to indicate great boldness; compare e. g. *Ebbe il fegato di arrestare i ladri da se*, 'He had the liver to arrest the robbers single-handed'. Likewise the Spanish *tener hígados* means 'to have courage'. There are in existence at the present time savage tribes which believe that the liver is the seat of courage, and which think that they can acquire the valor of a slain enemy who has behaved with conspicuous bravery by eating his liver ritually prepared<sup>9</sup>.

In English, 'white-livered', and in Greek *λευκηπαρις*, indicate cowardice<sup>10</sup>.

The source of concupiscence is likewise to be found in the liver: *Voluptas et concupiscentia, iuxta eos qui de physis disputant, consistit in iecore* (*Hieronymus, Epp.* 64). The same author repeats this idea elsewhere: *Porro libidinem, luxuriam, et omnium voluptatum cupidinem in iecore, id est, in vitulo qui terrae operibus haereat* (*Com. in Ezechielem* 1.1.10).

Parallels might be adduced from other languages. Because of his assault on Leto, the liver of Tityus is torn by vultures in the realm of Hades (*Od.* 11.578). So in *Proverbs* 7.23 the victim of the courtesan is lured on until the fatal arrow pierces his liver.

In short, the Romans believed that all the overmastering passions emanated from this organ: *Intus et in iecore aegro nascuntur domini* (*Persius* 5.129).

<sup>1</sup>In *Cymbeline* 5.5.14 three heroes are addressed as the Liver, the Heart, and the Brain of Britain.

<sup>2</sup>Compare *As You Like It* 3.2.442-445, And this way will I take upon me to wash your liver as clean as a sound sheep's heart, that there shall not be one spot of love in it. Compare also *Twelfth Night* 2.4.99-100:

Alas, their love may be call'd appetite,—  
No motion <i. e. emotion> of the liver, but the palate.  
My Knights, I will inflame thy noble liver,

And make thee rage.—*II King Henry IV* 4.5.28-29.

<sup>3</sup>Compare *T. N.* 3.2.17-20 She did show favour to the youth in your sight only to exasperate you, to awake your dormouse valour, to put fire in your heart, and brimstone in your liver.—The absence of blood from the liver indicates cowardice; compare *T. N.* 3.2.64-67 For Andrew, if he were opened, and you find so much blood in his liver as will clog the foot of a flea, I'll eat the rest of the anatomy.

<sup>4</sup>*Frazer, The Golden Bough*, Spirits of the Corn and of the Wild, 2.48.

<sup>5</sup>Compare *II Henry IV* 4.3.113 The liver white and pale, which is the badge of pusillanimity and cowardice; *M. V.* 3.2.86 livers white as milk.

<sup>1</sup>Compare *Psalms* 16.9, Therefore my heart is glad and my liver exulteth.

<sup>2</sup>The late Professor Wm. A. Lamberton, of the University of Pennsylvania, advanced the theory that the attribution of the seat of life to the liver was due to the character of ancient warfare. The peculiar structure of the human body not only gave better natural protection to the organs of the upper trunk cavity, but also made it possible to protect them more efficiently with pieces of armor. The liver was, then, in a peculiarly vulnerable position, and one would suppose that more warriors died from wounds in the liver than from injuries to the heart. At all events wounds would call attention to the peculiarly bloody character of the liver.

<sup>3</sup>Religious Belief in Babylonia and Assyria, 152.

<sup>4</sup>Pliny, *N. H.* 8.203; 28.197, 229.

There is no organ in which the physiological accompaniments of emotion are more pronounced than in the case of the liver. Thus, indulgence in anger leaves the system overcharged with secretions that the angry feelings have caused it to discharge. It is small wonder, then, that the ancients interchanged the relations of cause and effect, and maligned the liver for things of which it was innocent.

Although the liver was the traditional center of so many phases of human existence, the heart gradually began to usurp in popular belief<sup>11</sup> some of its functions. We are informed by Pliny, N. H. 11.186, that, at the time Pyrrhus was driven from Italy (274 B. C.), the heart was for the first time employed in divining the future.

'The addition of the heart to the liver corresponds manifestly to the time when, instead of regarding the liver as the seat of vitality, the heart was accorded this distinction; and this change reflected no doubt the progress in anatomical knowledge, through which the important functions of the heart were more clearly recognized<sup>12</sup>'.

The Romans realized that the heart was the most vital organ of the body, for Pliny, N. H. 11.182, notes that, when it alone is injured, death ensues forthwith, but that, when other organs are destroyed, vitality remains in the heart. He states in addition that the heart is the seat of life and of the blood. Hence the word *cor* is synonymous with *vita* in Ovid, *Fasti* 6.161-162:

Cor pro corde precor, pro fibris sumite fibras,  
hanc animam vobis pro meliore damus.

As was the case with the liver, the hearts of some animals had curative powers attributed to them; for instance, the heart of the hyaena, when taken with food or drink, was said to alleviate all kinds of pain in the body<sup>13</sup>.

Cicero, *Tusc.* 1.18, declares that in the estimation of some men the heart itself seems to be the soul, and hence wise Nasica was named *Corculum* and shrewd Aelius Sextus was called *egregie cordatus homo*.

The expression, *Cor iubet hoc Enni* (Persius 6.10), shows that the heart represents the essence of existence. The identity of one's self with the heart is further shown by the fact that the word *cor* came to be used as the equivalent of a personal pronoun. In Ennius, *Ann.* 13.381-383, Vahlen, *cor* is to all intents and purposes a poetic variation of *me* in the first line:

Hannibal audaci cum pectore de me hortatur,  
ne bellum faciam, quem credidit esse meum cor  
suasorem summum et studiosum robore belli.

Gellius, *Noctes Atticae* 6.2.10, explains that *cor meum credidit* is here equivalent to *ego credidi*.

The custom of some savage tribes of eating the hearts of victims, under the impression that they can thereby acquire the virtues of the dead, particularly their courage, is an interesting proof of the part that this organ

was supposed to play in life<sup>14</sup>. Not less instructive is the custom practised occasionally until recent times of burying the heart by itself<sup>15</sup>.

Following in the wake of the Greeks, the Romans made the heart the seat of intellectual activities. Pliny, N. H. 11.182, assures us that the mind dwells there: *ibi mens habitat*. Ennius's statement (Aulus Gellius, 17.17), that he had three hearts because he spoke Greek, Oscan and Latin<sup>16</sup>, is another indication that the heart was regarded as the seat of the intellect.

According to Roman ideas, the entire physical, mental, and emotional life centered in the heart. It was the seat of life and of the soul, of the affections, of cares, of terror and cowardice, of grief and sadness, of wrath and frenzy, of compassion, of love, of the intellectual faculties, of wisdom, intelligence, memory, etc. Numerous illustrations of such usage may be found in the *Thesaurus Linguae Latinae*, s. v. *cor*. We may convey some idea of the many notions that the Romans connected with the heart by merely citing Latin words derived from *cor*: *concordes*, *excordes*, *vecordes*, *cordatus*, *est cordi*, *haberi cordi*, *recordor*, *credo*, *miser cordia*, *Corculum*, etc.<sup>17</sup>

In a word, the heart exercised dominion over life: *dominium vitae continens cor* (Caelius Aurelius, *Chron.* 2.30.162)<sup>18</sup>.

Beliefs with regard to the heart have had some effect upon customs. Macrobius, *Saturn.* 1.6.17, tells us that it was the opinion of some men that boys were made to wear a figure of a heart on the bulla so that they might regard themselves as already men, *si corde praestarent*.

There is another custom, which owes its inception to Egypt. Both Greeks and Romans wore rings on the left hand upon the finger next to the smallest; in fact they called that finger the ring-finger. Apion (see Aulus Gellius 10.10), who was learned in the wisdom of the Egyptians, informs us that, when they opened bodies, they found a very delicate nerve which ran from this finger to the heart, and that therefore it seemed unfitting to do honor to this finger<sup>19</sup>. It remained, however, for Alexander ab Alexandro (4.26) to mention this finger in connection with a betrothal ring. He differs from Apion in saying that it was a very delicate vein which connected the finger with the heart. It may be noted that the Germans call the ring-finger the Herz-Finger.

As the functions of the heart were not entirely realized until Harvey's discovery of the circulation of the blood, it is not strange that there were so many misconceptions in antiquity. Galen, a Greek physician of the second century A.D., who spent considerable time at Rome, made a great step forward on the basis of convincing data. He noted that gladiators who received mortal

<sup>11</sup>Frazer, 147-153.

<sup>12</sup>F. Andry, *Recherches sur le Cœur et le Foie*, 100-123.

<sup>13</sup>Compare 'Another language is another soul'.

<sup>14</sup>Among the English derivatives of *cor* are courage, encourage, discourage, credit, cordial, concord, discord, record (compare, to take to heart), accord.

<sup>15</sup>Compare Aristotle, *De Partibus Animalium* 3.4.

<sup>16</sup>Compare Macrobius, *Saturn.* 7.13.7-8; Pliny, N. H. 33.24.

See Andry, *Recherches sur le Cœur et le Foie*, 35-36.

<sup>11</sup>In Twelfth Night 1.1.37-38 the heart and liver along with the brain are called "sovereign thrones".

<sup>12</sup>Tastrow, *Religious Belief in Babylonia and Assyria*, 159, 161.

<sup>13</sup>Pliny, N. H. 28.102, 111.

wounds in the heart retained possession of their mental faculties as long as they lived.

He concluded, therefore, that the seat of the intellect was not in the heart<sup>20</sup>.

We learn from Cicero, Tusc. 1.19, that some thinkers regarded the brain as the seat and place of the soul: alii in cerebro dixerunt animi esse sedem et locum. An interesting attempt to reconcile conflicting theories among the Greeks was made by Plato, who postulated a triple soul, assigning reason (*ratio*) to the head as the highest part of the body, wrath (*ira*) to the breast, and cupidity (*cupiditas*) to the region below the midriff (Cicero, Tusc. 1.20). According to Cicero, Tusc. 1.19, there was still another place for the soul, as Empedocles regarded it as a suffusion of blood from the heart: Empedocles animum esse censet cordi suffusum sanguinem.

Tangible parts of the body, as the liver, the heart, and the brain, did not, however, provide the most satisfactory abode for the soul. Something volatile was found to be more suitable. The most apparent manifestation of death was the cessation of breathing; hence the breath came naturally to be regarded as the seat of the soul: Sunt enim qui discessum animi a corpore putent esse mortem; sunt qui nullum censeant fieri discessum, sed una animum et corpus occidere, animumque in corpore extingui (Cicero, Tusc. 1.18)<sup>21</sup>.

The soul left the body by the same route as did the breath, and to say that the soul was in the nose meant that it was at its last station in its exit from the body, and that death was near. An interesting sentence occurs in Petronius 62: Mihi anima in naso esse, stabam tamquam mortuus<sup>22</sup>.

The close association of breath with life is illustrated by an account of the creation of man which is contained in the Etymologicum Magnum, s. v. 'Ἰκθυον: 'Zeus bade Prometheus and Athena mould images out of clay, and ordered the winds to breathe into them and to quicken them'. At death the life returned to the winds: in ventos vita recessit (Aen. 4.705).

The Biblical account of creation is very similar to that of the Greeks: And the Lord formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul (Gen. 2.7).

It is a striking coincidence that in most languages one word denotes both breath and soul. Thus, the Hebrew *nephesh*, 'breath', passes into the meanings 'life', 'soul', 'mind', 'animal'. Compare the Greek *psyche* and *pneuma*<sup>23</sup>. The belief that the breath was the seat of

the soul is reflected in Latin also. Thus we find Cicero, Tusc. 1.19, saying: Animum autem alii <dixerunt> animam, ut fere nostri (declarant nomina, nam et *agere animam* et *efflare* dicimus, et *animosos* et *bene animales*, et *ex animi sententia*; ipse autem animus ab anima dictus est). Cicero might have added to his list *unanimitas*, *bono animo*, etc. The word *spiritus* also is used for soul, and *Spiritus Sanctus* for Holy Ghost.

The attribution of the soul to the breath gave rise to the custom of catching the breath of the dying: Matres . . . nihil aliud orabant nisi ut filiorum postremum spiritum ore excipere liceret (Cicero, Verr. 2.5. 45)<sup>24</sup>. Similar customs elsewhere might be cited<sup>25</sup>: e. g.

Among the Seminoles of Florida, when a woman died in childbirth, the infant was held over her face to receive her parting spirit, and thus acquire strength and knowledge for its future use<sup>26</sup>.

(To be continued)

THE UNIVERSITY  
OF TEXAS.

EUGENE S. MCCARTNEY.

### REVIEW

The Equestrian Officials of Trajan and Hadrian: Their Careers, with Some Notes on Hadrian's Reforms. By Raymond Henry Lacey. Princeton University Dissertation. Princeton University Press (1917). Pp. vii + 87. 75 cents, net.

This is a precise and elaborately documented study, well planned and methodically executed. It belongs to the type of studies in which earlier generalizations are reviewed and revised in the light of materials not available to the scholars who first made the generalizations. On the whole, one's confidence in the acumen and judgment displayed by the great historians and philologists in the past half century is strengthened, for, although some corrections are inevitable, the number is surprisingly small in view of the very considerable accessions of new material. This material is conveniently arranged in a chronological list of Equites for the period, with a full citation of the pertinent data about each. Of the 98 listed, 23 came to be known since the appearance of the Prosopographia Imperii Romani, and in the case of 22 others new evidence was available. Two excellent indices, the first by names, the second by offices, make every significant fact easily accessible, and contribute greatly to the usefulness of this repository of critically sifted material.

Since experience has shown that scarcely any one who enjoys a widely recognized reputation for having been the first to do something actually was the first to do that thing, we are not surprised at the author's conclusion that "several changes commonly attributed to Hadrian were in fact made by Trajan", to which must, of course, be added, by way of justifying the *communis*

<sup>20</sup>Galen, De Locis Effectis (Volume 8, page 304, in Kuehn's edition).

<sup>21</sup>Compare *aurae vitales*, 'life-giving air'; *exanimis*, 'breathless', 'lifeless'. Vergil, Aen. 2.561-562, represents King Priam as 'breathing out his life'. Uncle Remus's definition of a dead man is 'one wid 'is bref gone'. Compare also Psalm 104.29, 'Thou takest away their breath, they die and return to their dust.'

<sup>22</sup>Some examples in English are instructive:

God witness with me, when I here came in,  
And found no course of breath within your majesty,  
How cold it struck my heart!—II King Henry IV 4.5.150-152.  
Lend me a looking-glass;  
If that her breath will mist or stain the stone,  
Why, then she lives.—King Lear 5.3.260-262.

<sup>23</sup>See Crusius, Rheinisches Museum, 46.319.

<sup>24</sup>See Tylor, Primitive Culture 1.432-433.

<sup>25</sup>Compare Vergil, Aen. 4.684-685; Seneca, Herc. Oet. 1341-1343; Ovid, Met. 12.424-425; Ovid, Ars Am. 3.745-746.

<sup>26</sup>Tylor, Primitive Culture 1.433. See also Frazer, The Dying God, 194-196.

<sup>27</sup>When this idea occurs in English verse, it is, of course, only a poetic fiction. See Pope, Eloisa to Abelard, 324, 'Suck my last breath, and catch my flying soul.'